Remarks

Claims 2-7, 9, 10, 12-17, 19, 20, 22-27, 29, and 30 are pending. All claims have been rejected under 35 U.S.C. 103(a) as being unpatentable over a combination of references that includes U.S. Patent No. 5,069,355 to Matuszak and U.S. Patent No. 3,637,381 to Hallman et al.

Response to Rejections

Applicant respectfully submits that Matuszak and Hallman would not have been combined in the asserted manner, since they come from two diverse fields and there is no apparent reason to apply any teaching of Hallman (relating to photo-etching of substrates) to modify Matuszak's easy-opening container.

However, even if Hallman were somehow considered applicable to Matuszak's container, it fails to teach any microwave-radiation-weakened adhesive bond between two layers, and therefore would not have suggested the claimed invention. The cited passages of Hallman (col. 15, lines 5-11 and 46-48) have not been properly considered in the context of Hallman as a whole, and therefore the Office Action has mistakenly concluded that those passages teach an adhesive bond that is weakened by microwave radiation. That is plainly not the case.

To properly understand the cited passages of Hallman, it is necessary to consider Hallman as a whole. In col. 1, lines 41+, Hallman states that his invention contemplates projecting an image upon an electromagnetic radiation-sensitive element consisting of a metallic layer having an overlayer of a material exhibiting an affinity for reacting with the metallic layer when exposed to *actinic radiation* such as visible light, preferably of high intensity. As known in the art, "actinic radiation" is electromagnetic radiation that can produce photochemical reactions (see http://www.wordwebonline.com/en/ACTINICRADIATION). The image formed on the electromagnetic radiation-sensitive element results from interface reactions under the influence of actinic radiation, which cause an etching effect upon the surface of the metallic layer in contact with the overlayer, and the interreaction products are subsequently removed chemically or mechanically. The finished article thus consists of the metallic layer presenting at least one surface having selectively etched portions corresponding to the exposed portions and of depths substantially proportional to the amount of illumination or actinic radiation exposure, the unexposed portions remaining intact.

At col. 2, lines 38+, Hallman indicates that in a further embodiment the radiation-sensitive element can be a multilayer element having a plurality of strata each made of a pair of layers of dissimilar materials capable of actinically reacting with each other, which permits obtaining a relief image corresponding to an original image projected upon the surface of the element and having a substantially greater relief depth than obtainable with an element of only two layers. Every layer is substantially transmissive of the electromagnetic actinic radiation such that the exposure of the element to the radiation extends in depth proportionally to the intensity of the actinic radiation. Thus, the finished article presents a two-level relief image corresponding to and being a reproduction of the original image projected upon the element, or alternately the article presents a variable depth relief image corresponding to the shape of the image projected on the radiation-sensitive element and varying in depth according to the varied radiation intensity impinged upon the element.

Turning to the passages at col. 15 cited in the Office Action, Hallman is there describing the further embodiment summarized in the passage at col. 2. The detailed description of that embodiment actually begins, however, at col. 13, line 24, and refers to Figures 13 and 14 depicting a multilayer radiation-sensitive element 10' having three strata each including a pair of layers 12 and 14 made of dissimilar materials capable of interreacting with each other when exposed to the actinic radiation. Each layer is substantially thin, and may have a thickness of a few atom layers to several thousand Angstroms. Suitable materials for layers 12 and 14 are listed at col. 5, lines 40-75 and col. 6 lines 1-62. That passage also indicates that the overlayer 14 is “deposited on” the metallic layer 12, which indicates that the bonding between the layers is not produced by any adhesive.

At col. 14, lines 24+, Hallman describes that a typical multilayer radiation-sensitive element 10' comprises a first metallic layer 12 made, for example, of silver that is vacuum-deposited on a substrate 40 of paper, glass, plastic, metallic foil, or the like. The layer 12 is typically a few atom layers to several Angstroms thick. On top of the layer 12 is vacuum-deposited a thin coating 14 of an arsenic-sulfur mixture such as arsenic disulfide, trisulfide, or pentasulfide, having a thickness of a few atom layers to several microns. The first overlayer 14 is then provided with a second metallic layer 12, which is overlaid by a second overlayer 14, and so forth, to build up the desired number of strata. The resulting element 10' consists of a plurality of alternating thin metallic layers and inorganic layers, each thin enough to be substantially transmissive of electromagnetic radiation such as ordinary intense white light, so as to form interreaction product 30 extending to a depth all the way through the plurality of strata to the substrate 40 of the element 10'. The interreaction product 30 thus formed is then removed, resulting in the finished article 11 as shown in Figures 16 and 17. The article 11 has voids 48 corresponding to the irradiated areas of the element, and portions such as 50 and 52 corresponding to areas that were not irradiated.

Nowhere in the description of the multilayer element 10' is there any teaching or suggestion that the layers 12, 14 are joined together by an adhesive. Indeed, given the extreme thinness that the layers can have, and the fact that they are vacuum-deposited, it is clear that the layers are not adhesively bonded.

Beginning at the top of col. 15, Hallman then describes that if it is desired to obtain a finished article having a recessed representation of the contour of the image originally projected upon the radiation-sensitive element, the portions of the finished article 11 of Figures 16 and 17 included within the perimeter of such contour are removed by conventional mechanical means or by way of a *subsequent exposure to electromagnetic radiation through an appropriate mask, in order to provoke the formation of interreaction product weakening the bond between layers thereof for facilitating mechanical removal thereof.*

This is clearly describing the very same type of process as previously described, wherein the article 11 is exposed to actinic radiation (i.e., intense visible light) so as to form the interreaction product 30. Thus, Hallman is not describing any type of adhesive bond that is weakened by microwave radiation. Indeed, nowhere in Hallman is there any teaching or remote suggestion of any adhesive bond or using microwave radiation for any purpose. The Office

Action's attempt to include microwave radiation within the broad scope of "electromagnetic radiation" is erroneous because it is quite clear that Hallman is describing only actinic radiation throughout the patent disclosure. Actinic radiation is not microwave radiation.

Therefore, contrary to the Office Action, Hallman does not teach that it is known to utilize microwave radiation to weaken adhesive bonds, and hence it would not have been obvious based on Hallman to weaken the adhesive bond in Matuszak's container by exposing it to microwave radiation.

Conclusion

Based on the remarks above, Applicant respectfully submits that all pending claims are patentable and the application is in condition for allowance.

Respectfully submitted,

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